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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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KNOBBE MARTENS OLSON & BEAR LLP		
2040 MAIN STREET		
FOURTEENTH FLOOR		
IRVINE, CA 92614		

EXAMINER	
BOWERS, NATHAN ANDREW	

ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary	Application No. 10/723,168	Applicant(s) WEST, LARRY EUGENE	
	Examiner Nathan A. Bowers	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-11, 16-34, 38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) 25-34 and 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11, 16-24 and 38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1) Claims 1-3, 5-11, 16-20, 23, 24 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irwin (US 6385496) in view of Cannon (US 20050186671) and Zeitlin (EP 0156176).

With respect to claims 1-3, 9-11 and 38, Irwin discloses a system for controlling a plurality of different reactor processes in a plurality of reactors (Figure 1:100, 200, 300). The reactors are coupled to a controller (Figure 1:12) over a selected communication network (Figure 1:18). The controller receives information from the reactors, and determines a control signal based on data representing conditions within each reactor. This is disclosed in column 4, line 32 to column 5, line 41. A monitoring system transmits information related to a condition within the reactor and obtained by sensors (Figure 1:105, 205, 305) to the controllers via the utility

tower. Computers (Figure 1:14) are additionally provided to accept input of a control command to change a desired condition within a reactor by sending a command signal to the controller (Figure 1:12) over an additional network (Figure 1:15). Irwin, however, does not expressly indicate that a utility tower is used to transmit detected conditions within the reactors to the controller.

Cannon discloses a bioreactor system in which a plurality of bioreactor assembly cartridges (Figures 1-3) are positioned within a incubator rack (Figure 4). Each bioreactor assembly includes a media reservoir (Figure 6:22), a bioreactor (Figure 6:10) and at least one flow sensor (Figure 6:13). This is disclosed in paragraph [0052]. Cannon teaches in paragraph [0083] that data obtained by each of the sensors in each of the bioreactor assemblies is first sent to a utility tower in the form of an amplifier or a transmitter, and then it is sent a controller via a communication path or bus.

Irwin and Cannon are analogous art because they are from the same field of endeavor regarding control networks for multiple reactor systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to provide the system for controlling a plurality of different reactors disclosed by Irwin with a common utility tower means configured to sense conditions in the plurality of reactors. Cannon indicates in paragraph [0083] that it is known in the art to utilize amplifiers and transmitters as a utility tower to relay information between a controller and a bioreactor. Cannon suggests that the use of a transmitter is a common mechanism by which to send data to a local or remote controller.

The Irwin reference still differs from Applicant's claim invention because Irwin does not expressly disclose that the reactors are bioreactors.

As discussed above, Cannon discloses a bioreactor system in which culturing parameters such as temperature, dissolved gas concentration and glucose concentration are monitored.

Zeitlin discloses a system for controlling a plurality of bioreactors (Figure 1:15) using controllers (Figure 1:10, 11, 12, 13, 20). Zeitlin indicates on page 7, lines 21-28 and page 9, lines 1-27 that air flow, oxygen flow, agitator speed, foam, pH and temperature levels within the bioreactor are monitored and regulated using the controllers.

Irwin, Cannon and Zeitlin are analogous art because they are from the same field of endeavor regarding control networks for multiple reactor systems.

At the time of the invention, it would have been obvious to one of ordinary skill in the art that the control system disclosed by Irwin would be fully capable of regulating the operation of a plurality of bioreactors. It would have been apparent to use the system of Irwin to monitor and control certain parameters, such as agitation, temperature and fluid flow, that are critical to fermentation processes. As evidenced by Zeitlin and Cannon, it is well known in the art to regulate bioreactor systems using an automated controller.

With respect to claims 5-8, 23 and 24, Irwin, Cannon and Zeitlin disclose the apparatus set forth in claim 3 as set forth in the 35 U.S.C. 103 rejection above. As described above, Zeitlin indicates that it is known in the art to control parameters essential to fermentation. Zeitlin describes a system in which temperature, oxygen level and pH are regulated.

With respect to claim 16, Irwin, Cannon and Zeitlin disclose the apparatus set forth in claim 4 as set forth in the 35 U.S.C. 103 rejections above. Although Cannon does not disclose the use of a plural number of utility towers in communication all of the reactors, it would have been obvious to utilize a plurality of transmitters or amplifiers each corresponding to an individual reactor. This represents only a mere duplication of parts since Cannon already discloses the use of a single utility tower that includes all of the claimed limitations. Zeitlin does disclose a control arrangement in which a plurality of bioreactors (Figure 1:15) are each in communication with a separate utility tower (Figure 1:10, 11, 12, 13) that are in turn coupled to a controller (Figure 1:20). Zeitlin is evidence that it is known in the art to provide a first and second utility tower coupled to a controller via a first and second communication system.

With respect to claim 17, Irwin, Cannon and Zeitlin disclose the apparatus set forth in claim 15 as set forth in the 35 U.S.C. 103 rejection above. Irwin discloses in column 1, lines 12-38 that FOUNDATION fieldbuses are known in the art as effective communication networks. Column 4, lines 31-34 indicate that Ethernet connects are used in Irwin's system. Although not expressly disclosed by Irwin, DeviceNet buses are considered to be well known in the art as well.

With respect to claims 18-20, Irwin, Cannon and Zeitlin disclose the apparatus set forth in claim 6 as set forth in the 35 U.S.C. 103 rejection above. In addition, Zeitlin teaches on page 9, lines 17-27 that a cold water bath is used to regulate the temperature within the bioreactors. Although not expressly disclosed by Zeitlin, the use of a cold finger and a heating pad are also temperature control techniques in fermentation systems.

2) Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Irwin (US 6385496) in view of Cannon (US 20050186671) and Zeitlin (EP 0156176) as applied to claim 9, and further in view of Armstrong (US 6048721).

Irwin, Cannon and Zeitlin disclose the apparatus set forth in claim 9 as set forth in the 35 U.S.C. 103 rejections above, however do not expressly describe that the computer includes a touch screen display.

Armstrong discloses a fermentation system in which the operation of the bioreactor is regulated by a controller. Column 7, lines 32-41 state that information is input to a computer by an operator using a touch screen (Figure 11:330).

Irwin, Cannon, Zeitlin and Armstrong are analogous art because they are from the same field of endeavor regarding bioreactor control systems.

At the time of the invention, it would have been obvious to ensure that the computer disclosed by Irwin included a touch screen capable of inputting control instructions. As evidenced by Armstrong, touch screens are considered to be well known in the art as effective input devices. It would require only minor structural alterations to the system of Irwin to include a touch screen feature at the computer.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined

application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3) Claims 1-24 and 38 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 8-11, 14-22, 27 and 40-48 of copending Application No. 11/057079. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant application is generic to Application No. 11/057079. Application No. 11/057079 includes all of the limitations presented in the instant application, such as the use of first, second and third communication networks, utility towers, and controllers to regulate the operation of a bioreactor system. Application No. 11/057079 is drawn to additional limitations regarding the use of the control system that are not presented in the claims of the instant application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's arguments filed 26 November 2007 with respect to the 35 U.S.C. 103 rejections involving the combination of Irwin and Zeitlin have been fully considered and are persuasive. Therefore, these rejections have been withdrawn. However, upon further consideration, a new ground of rejection is made in view of the combination of Irwin, Cannon and Zeitlin.

Cannon clearly addresses the deficiencies of Irwin by indicating that it is known in the art to pass data obtained by sensors through a utility tower transmitter before moving to a controller. Applicant has argued that the control system 12 of Irwin cannot function as a utility tower because it includes a memory means 22 and a processor 24. Upon review, it is agreed that the control system 12 of Irwin operates as a controller and not a utility tower. However, in light of the Cannon reference, one of ordinary skill in the art would have found it obvious to use a utility tower to transmit data to the controller of Irwin.

Conclusion

This is a non-final rejection.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan A. Bowers whose telephone number is (571) 272-8613. The examiner can normally be reached on Monday-Friday 8 AM to 5 PM.

Application/Control Number:
10/723,168
Art Unit: 1797


Page 9

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



NAB



GLADYS JP CORCORAN
SUPERVISORY PATENT EXAMINER